

United States Patent and Trademark Office

SIL

UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, Virginia 22313-1450

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/938,260	08/23/2001	Steven W. Russell	TI-25084	1259
	590 09/15/2003	÷		
TEXAS INSTRUMENTS INCORPORATED			EXAMINER	
	P O BOX 655474, M/S 3999 DALLAS, TX 75265		FENTY, JESSE A	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

7	Application No.	Applicant(s)				
Office Action Symmony	09/938,260	RUSSELL ET AL.				
Office Action Summary	Examiner	Art Unit				
	Jesse A. Fenty	2815				
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
A SHORTENED STATUTORY PERIOD FOR REPLY THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.1 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply - If NO period for reply is specified above, the maximum statutory period of Failure to reply within the set or extended period for reply will, by statute - Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b). Status	36(a). In no event, however, may a reply be tim y within the statutory minimum of thirty (30) days will apply and will expire SIX (6) MONTHS from , cause the application to become ABANDONED	rely filed s will be considered timely. the mailing date of this communication. O (35 U.S.C. § 133).				
1) Responsive to communication(s) filed on 21 A	<u> August 2003</u> .					
2a) ☐ This action is FINAL . 2b) ☑ Th	is action is non-final.					
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.						
Disposition of Claims						
4) Claim(s) 28-33 is/are pending in the application.						
4a) Of the above claim(s) is/are withdrawn from consideration.						
5) Claim(s) is/are allowed.						
6)⊠ Claim(s) <u>28-33</u> is/are rejected.						
7) Claim(s) is/are objected to.						
8) Claim(s) are subject to restriction and/or election requirement.						
Application Papers						
9) The specification is objected to by the Examiner.						
10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.						
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).						
11) ☐ The proposed drawing correction filed on is: a) ☐ approved b) ☐ disapproved by the Examiner.						
If approved, corrected drawings are required in reply to this Office action.						
12) The oath or declaration is objected to by the Examiner.						
Priority under 35 U.S.C. §§ 119 and 120						
13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).						
a) ☐ All b) ☐ Some * c) ☐ None of:						
 Certified copies of the priority document 	s have been received.					
2. Certified copies of the priority documents have been received in Application No						
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received.						
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).						
a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.						
Attachment(s)						
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)	5) Notice of Informal I	/ (PTO-413) Paper No(s) Patent Application (PTO-152)				

Application/Control Number: 09/938,260

Art Unit: 2815

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/21/03 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 3. Claims 28-30, 32 and 33 through are rejected under 35 U.S.C. 102(e) as being anticipated by Han et al. (U.S. Patent No. 6,429,129 B1).

In re claim 28, Han discloses an integrated circuit structure, comprising:

At least two metal interconnect lines (12);

A liner (14) comprising silicon and carbon located on and between said metal interconnect lines; and

Application/Control Number: 09/938,260

Art Unit: 2815

A dielectric layer (16) positioned between said metal interconnect lines, the liner positioned between at least a portion of the dielectric layer and the metal interconnect lines.

In re claim 29, Huang discloses the device of claim 28, wherein the liner is silicon carbide (column 2, line 66).

In re claim 30, Han discloses the device of claim 28, wherein the dielectric layer comprises an intralevel dielectric layer (column 2, line 48) positioned between metal interconnect lines in a level of the integrated circuit structure.

In re claim 32, Han discloses the device of claim 28, wherein the dielectric layer comprises a fluorinated dielectric material (column 3, lines 35-39).

In re claim 33, Han discloses the device of claim 28, wherein the dielectric layer comprises PTFE (column 3, line 39).

Claim Rejections - 35 USC § 103

- 4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han as applied to claim 28 above, and further in view of Loboda et al. (U.S. Patent No. 5,818,071).

In re claim 31, Han discloses the device of claim 28, but does not expressly disclose a dielectric layer comprising an interlevel dielectric layer positioned between conductive elements in different levels of the integrated circuit structure. Loboda discloses a dielectric layer (5, 9)

Application/Control Number: 09/938,260

Art Unit: 2815

comprising an interlevel dielectric layer positioned between conductive elements (6, 7) in

different levels of the integrated circuit structure. It would have been obvious for one skilled in

the art at the time of the invention to add additional levels as disclosed by Loboda to the device

of Han for the purpose, for example, of creating a multi-level device (Loboda; column 3, lines

59-66) to enhance the device density of the integrated circuit.

Response to Arguments

Applicant's arguments with respect to claims 1-17 have been considered but are moot in 6.

view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jesse A. Fenty whose telephone number is 703-308-8137. The

examiner can normally be reached on 5/4-9 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Eddie Lee can be reached on 703-308-1690. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-308-0956.

Jesse A. Fenty

Art Unit 281

Page 4

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 2800